



## First Language Acquisition at Your Fingertips: A Digital Flipbook Resource for Pre-Service English Teachers

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**Submission History:**

Submitted: October 09, 2024

Revised: December 07, 2024

Accepted: December 12, 2024



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### Abstract

Pre-service English teachers (PSETs) often encounter challenges translating theoretical knowledge of Foreign Language Acquisition (FLA) principles into practical classroom applications, impacting their confidence and readiness for teaching. To address this issue, this study examines creating and assessing a digital flipbook developed as a targeted learning resource to enhance PSETs' ability to connect theoretical knowledge with practical teaching applications. The flipbook was designed to incorporate multimedia features, interactive activities, and learner-centered principles, providing PSETs with an engaging and practical learning resource. The study utilized the 4D model to guide the design and development process, involving 30 third-year PSETs at Sultan Ageng Tirtayasa University. Expert validation of the flipbook's design, content, and language yielded a score of 4.75, categorized as "very valid." Practicality testing from students' perceptions resulted in an average score of 4.66, categorized as "very good." The assessment test, measuring comprehension and critical thinking skills, indicated a medium N-gain score of 0.32, reflecting moderate improvement in learning outcomes. The findings suggest that the digital flipbook effectively supports PSETs in understanding and applying FLA concepts, though the moderate improvement highlights areas for further refinement. This case study underscores the potential of digital flipbooks as tools for bridging the gap between theory and practice in teacher education.

**Keywords:** Foreign language acquisition, pre-service teacher, English language learning, teaching material, digital flipbook, digital learning resource.

### INTRODUCTION

Integrating Information and Communication Technology (ICT) into teaching materials has become indispensable in 21st-century education, driven by rapid technological advancements. This shift from traditional classroom practices to digital approaches has enabled more flexible and accessible learning experiences. Digital resources are particularly relevant today, not only because they align with technological progress but also due to their adaptability (Wang et al., 2024; Sailer et al., 2021). Teachers can continuously update content to incorporate new scientific developments and pedagogical strategies, ensuring that

learning remains engaging and up-to-date. Digital teaching materials are accessible across various devices, such as laptops, Chromebooks, and smartphones, making them versatile tools for diverse learning environments (Perry et al., 2022). As Mhlongo et al. (2023) highlight, these resources are highly interactive, fostering active participation through multimedia features. This interactivity transforms the learning experience, making it more dynamic and immersive while helping students develop a deeper understanding of complex concepts. Moreover, their adaptability ensures that digital teaching materials remain relevant by aligning with ongoing technological advancements and evolving societal needs (Omol, 2023).

Despite these advancements, challenges remain in leveraging digital resources to address specific educational needs. A preliminary needs study conducted with English pre-service teachers at Sultan Ageng Tirtayasa University revealed a significant challenge in their ability to effectively connect foundational teaching methodologies with practical classroom applications in the context of English as a Foreign Language (EFL). Many pre-service teachers struggled to apply theoretical concepts, such as language acquisition theories and lesson planning strategies, to real-world teaching scenarios, often lacking confidence and preparedness during their teaching practicums. This challenge aligns with observations by Karlström and Hamza (2021), who noted that pre-service teachers frequently encounter difficulties executing it effectively despite being taught how to initiate the planning process. Similarly, Oo et al. (2021) found that most pre-service teachers face challenges using assessment strategies effectively to inform teaching and learning decisions. The disconnect is further exacerbated by fragmented and overly theoretical teaching resources that lack interactive and engaging elements, limiting their ability to cater to diverse learning styles. Munna and Kalam (2021) emphasize the importance of integrating various resources, such as computers, smartboards, interactive games, and computer programs, to enhance teaching effectiveness. Additionally, Wong and Moorhouse (2021) highlight the critical role of leveraging digital resources, pedagogy, and assessments in modern teaching.

Achieving success in the learning process requires teaching materials that are thoughtfully designed to align with learning objectives while capturing students' interest and motivation. Teachers play a vital role in creating resources that meet these objectives and enhance engagement and understanding. Digital teaching materials offer distinct advantages by providing flexible access, simplifying information delivery, and incorporating features that are more interactive and engaging (Alamri et al., 2020; Arthur-Nyarko et al., 2020). To develop effective teaching materials, several key factors must be considered: they should clearly outline specific learning objectives (Gacs et al., 2020), thoroughly address a single competency and its sub-competencies (Haşlamam et al., 2023), be self-contained and usable independently (Vieyra & González, 2020), and be presented in an attractive, easy-to-understand format (Kwangmuang et al., 2021). By adhering to these principles, teachers can create materials that enrich the learning experience, making education practical and relevant in the modern era.

Building on these principles, technology has revolutionized the design and use of teaching materials, providing enhanced accessibility and flexibility. In this research context, digital flipbooks enable educators and students to overcome physical and temporal barriers while fostering interactive and inclusive learning environments tailored to modern

educational needs (Gusman et al., 2021; Hadiapurwa et al., 2021). Digital flipbooks serve as interactive educational tools that combine multimedia elements, such as text, videos, audio, and quizzes, to deliver content in a visually engaging and user-friendly format (Darmawan et al., 2024). In educational settings, flipbooks are used for lessons, tutorials, and instructional materials, aligning with curricular goals and embedding features like video demonstrations, audio for listening exercises, and quizzes for real-time assessment. Often integrated into online platforms, they support asynchronous or synchronous learning and enable students to review content independently (Mahendri et al., 2023). Additionally, flipbooks are employed for project-based tasks, allowing students to explore topics through multimedia and submit creative assignments, fostering engagement and critical thinking.

The development and use of flipbooks in education have demonstrated their versatility and effectiveness across various contexts, from higher education to elementary and junior high schools. Mahendri et al. (2022) highlighted the success of an interactive flipbook-based e-module for teaching algorithms and programming, which received excellent validation scores and increased student motivation for online learning. Similarly, Gusman et al. (2021) showcased the potential of flipbooks with multimedia elements like animations and videos to enhance poetry writing instruction in elementary schools, making learning more engaging and aligned with modern technological advancements. Sa'adah et al. (2022) explored flipbooks for formative assessment in junior high school English lessons, noting their practicality for many students while recognizing challenges related to digital distractions. Meanwhile, Yomaki et al. (2023) demonstrated the effectiveness of a problem-based learning flipbook in fostering critical thinking skills and achieving high validation and student response ratings. Research conducted by Mayer (2014) supports these findings, demonstrating that integrating multimedia components such as photographs, infographics, and videos effectively enhances understanding and memory retention, particularly in topics like FLA. Sailer and Sailer (2020) further emphasize the role of digital resources in improving learner motivation and engagement, offering insights for designing a flipbook interface that actively supports PSETs' engagement in FLA learning.

Despite the increasing integration of digital resources in education, there remains a critical gap in addressing the specific challenges pre-service English teachers face in bridging theoretical knowledge with practical classroom applications in the context of English as a Foreign Language (EFL). A preliminary needs study conducted with English pre-service teachers at Sultan Ageng Tirtayasa University identified this disconnect as a significant barrier to their preparedness and confidence during teaching practicums. This research aims to address this problem by developing a digital flipbook tailored to the needs of pre-service teachers, offering comprehensive explanations of foundational teaching methodologies alongside interactive exercises and real-world applications. By enhancing the connection between theory and practice, this study seeks to create an innovative and practical resource that empowers pre-service teachers with the skills and confidence necessary for effective EFL instruction.

## METHOD

This study employed the 4D Model proposed by [Thiagarajan et al. \(1974\)](#), which consists of four stages: Define, Design, Develop, and Disseminate, to develop and evaluate a digital flipbook specifically tailored for pre-service English teachers (PSETs) focusing on Foreign Language Acquisition (FLA). According to [Irawan et al. \(2018\)](#), the 4D Model is a straightforward instructional design framework, enabling researchers to create products that enhance learners' abilities during the learning process. A comprehensive review of the literature on FLA principles, digital learning resources, and PSETs' preferences was conducted in the Define stage. Additionally, interviews and surveys were used to identify specific challenges PSETs face in understanding FLA concepts. This analysis identified the research goals and defined the scope of content to be included in the digital flipbook ([Ho & O'Sullivan, 2020](#)). Further, the design stage focused on organizing essential FLA topics based on the findings from the needs analysis. The content was meticulously crafted to ensure clarity, conciseness, and engagement while accommodating diverse learner backgrounds. Multimedia elements, including photos, infographics, videos, and audio, were incorporated to simplify complex concepts and address various learning styles. Interactive activities such as quizzes, simulations, and open-ended questions were developed to encourage active learning, evaluate understanding, and stimulate critical thinking. Additionally, a user-friendly platform supporting these features was selected, and the interface was designed to ensure functionality, aesthetic appeal, and accessibility ([Ostrowski et al., 2015](#)).

In the Development stage, the content was integrated into the digital flipbook format, incorporating the planned multimedia and interactive components. Validation was carried out by experts in education technology, language instruction, and material design, whose feedback was utilized to refine and enhance the resource. Practicality and effectiveness tests were conducted with 30 Sultan Ageng Tirtayasa University students to assess the flipbook's usability, performance, and impact on FLA learning. User feedback during this phase played a crucial role in identifying areas for improvement, aligning with [Kreuter and Wang's \(2015\)](#) assertion that users play an active role in shaping effective solutions through critical feedback during the development process. Finally, the Disseminate stage involved distributing the finalized flipbook to a broader group of PSETs to evaluate its usability and overall learning experience. The responses collected during this stage were analyzed to ensure the flipbook successfully addressed its intended purpose of bridging the gap between theoretical knowledge and practical application in FLA education for PSETs.

The data collected from the questionnaire were evaluated using a 5-point Likert scale, a tool widely utilized to measure attitudes, perceptions, and views on social phenomena ([Joshi et al., 2015](#)). The scale ranged from 1 ("very low validity or feasibility") to 5 ("very high validity or feasibility"). Open-ended questions at the end of the questionnaire allowed validators to provide recommendations for improvements. The validity and feasibility of the flipbook were critical in determining its effectiveness, as a highly valid and feasible resource ensures its suitability for learning purposes. The assessment phase transitioned to evaluating the flipbook's practicality and efficacy, guided by criteria drawn from three dimensions: learnability, effectiveness, and satisfaction ([Jin, 2022](#)). These dimensions were further broken down into specific indicators—seven for learnability, five for effectiveness, and two for satisfaction. Participants rated these indicators using a 5-point Likert scale,

ranging from "strongly disagree" to "strongly agree," while open-ended questions collected additional suggestions for improvement.

Effectiveness was also measured through an essay test conducted after the session, focusing on learning outcomes related to understanding FLA principles. These outcomes included three main objectives: understanding the phases and processes of first language acquisition, differentiating between first and second language acquisition, and applying FLA principles to improve English language teaching methods.

**Table 1.** Normalized Gain Score (g)

No	N-gain score	Category
1	(g) > 0,7	High
2	0,3 > (g) > 0,7	Medium
3	(g) < 0,3	Low

To gauge students' progress, their understanding of EFL topics and critical thinking skills before and after instruction were analyzed using a normalized gain score (g), as outlined in Table 1. This comprehensive approach ensured that the flipbook's practical usability and instructional impact were thoroughly evaluated.

## FINDING AND DISCUSSION

### *Defining needs and challenges*

A needs assessment is fundamental to developing effective instructional materials (Kabanova & Kogan, 2017), and it serves as a crucial step in creating a digital flipbook on Foreign Language Acquisition (FLA) tailored for pre-service English teachers (PSETs). This process involves identifying specific knowledge gaps and challenges PSETs face and defining the learning outcomes necessary to enhance their training (Gacs et al., 2020). A targeted needs analysis ensures that the flipbook aligns with the requirements of their pre-service education while addressing the practical complexities of teaching English as a Foreign Language (EFL). A preliminary needs study conducted at Sultan Ageng Tirtayasa University revealed a significant challenge: PSETs struggled to bridge the gap between theoretical concepts, such as language acquisition theories, and their practical application in classroom settings. This disconnect highlights the necessity for instructional materials that go beyond traditional methods to promote conceptual understanding and practical readiness.

Informed by these findings, the development of the digital flipbook prioritizes comprehensive content enhanced by interactive and visually engaging features to address these challenges effectively. Mayer (2019) emphasizes that digital instructional materials provide teachers and their supporters with critical guidance for making informed decisions about teaching and learning. The resulting flipbook aims to equip PSETs with the skills and knowledge required to translate theoretical understanding into effective teaching strategies, enabling them to support their future students' language acquisition confidently. Rooted in a thorough needs assessment, this strategic approach ensures the creation of an impactful and professionally relevant resource for EFL education (Padmadewi et al., 2022).

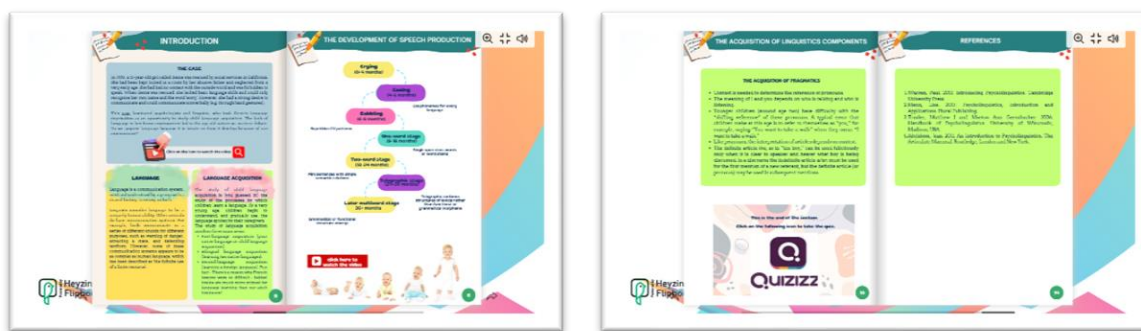
### ***Designing and Developing the Digital Flipbook***

The development of the Foreign Language Acquisition (FLA) digital flipbook for pre-service English teachers (PSETs) followed a systematic process to ensure both instructional effectiveness and user engagement. This process began with the planning and scripting phase, during which researchers identified essential FLA principles that PSETs should comprehend and apply. These principles provide a foundational understanding of how individuals acquire a second or foreign language and inform effective instructional design. Key principles include comprehensible input, where learners acquire language through exposure to material slightly beyond their current proficiency level (Nugroho et al., 2020). Additionally, the output hypothesis underscores the role of language production, such as speaking and writing, in refining linguistic skills (Liu, 2022). Active noticing of linguistic features, such as grammar and vocabulary, is critical for effective internalization (Tilahun et al., 2022). Through strategies like memorization, pattern recognition, and metacognitive awareness, cognitive engagement further enhances the learning process. Task-based learning, which incorporates real-world communication tasks and multimodal approaches that integrate visual, auditory, and kinesthetic elements, enriches the learning experience and caters to diverse learning styles (Sholeh et al., 2020; Rohi & Nurhayati, 2024). Together, these principles provide a comprehensive framework for designing instructional materials that effectively address the theoretical and practical aspects of language learning, ensuring that the flipbook meets the educational needs of PSETs while fostering meaningful and impactful learning experiences.



**Figure 1.** Flipbook teaching materials using the heyzine application

Building on this foundation, the design and development phase leveraged Canva for its versatile design tools and templates. This platform facilitated the creation of visually appealing and well-structured pages that were engaging and professional (Ilyas et al., 2023). Once the content was finalized in Canva, the pages were exported in high-quality formats (PNG or JPEG), preparing them for the next stage. In the finalization and interactivity phase, the exported pages were imported into Heyzine, a flipbook creation platform that allowed for the integration of multimedia elements. Features such as explainer videos, audio clips, quizzes, and clickable links were added to enhance the learning experience. These interactive components aimed to engage PSETs actively and support a deeper understanding of FLA concepts, transforming the flipbook into a dynamic and user-friendly educational tool (Masykuri et al., 2024). This cohesive approach ensured that the digital flipbook conveyed critical content and fostered an immersive and effective learning environment.



**Figure 2.** Flipbook teaching materials using the heyzine application

The figure illustrates the research-developed flipbook learning material designed for pre-service English teachers (PSETs), focusing on the principles of Foreign Language Acquisition (FLA). The flipbook integrates visually appealing and interactive features to enhance the learning experience. On the left page, the content provides detailed explanations of key FLA concepts, such as language and language acquisition, presented in concise, color-coded sections to facilitate comprehension and cater to diverse learning styles (Eliot et al., 2024). The use of highlighted text and organized layouts ensures clarity and accessibility. Additionally, the flipbook includes a flowchart detailing the stages of speech production development, accompanied by visual elements such as icons and relevant images to aid in understanding complex processes (Castro-Alonso et al., 2021).

Including a clickable video link at the bottom further enriches the multimedia experience, enabling users to engage with supplementary resources that reinforce the content. Integrating a Quizizz activity enhances interactivity, allowing PSETs to actively engage with the material and assess their understanding dynamically and engagingly. Research highlights that gamification promotes emotional well-being and plays a critical role in helping learners acquire new skills and retain course content (Li et al., 2022; Zuhriyah & Pratolo, 2020). The right page features the References, ensuring academic credibility and providing users access to the material's foundational sources. Its visually simple and uncluttered design enhances accessibility and readability, making it easier for users to locate additional information efficiently.

### ***Evaluation of the digital Flipbook***

Three experts from Sultan Ageng Tirtayasa University, specializing in material design, educational technology, and language instruction, comprehensively evaluated the digital flipbook. The expert validation results yielded an average score of 4.75, as presented in Table 2. This score indicates that the developed digital flipbook is classified as highly valid.

**Table 2.** Expert validation result

No.	Evaluation Aspect	Expert			Average	Category
		1	2	3		
Design						
1	Display quality	5	5	5	5	Very valid
2	Layout quality	5	4	4.5	4.5	Very valid
3	Text quality	5	5	5	5	Very valid

4	Figure quality	4	5	4.5	Very valid
5	Video quality	4	4	4	Very valid
6	Digital flipbook quality	4	5	4.5	Very valid
<b>Content</b>					
7	Quality of material concepts	5	5	5	Very valid
8	Title of digital flipbook	5	5	5	Very valid
9	Introduction	5	5	5	Very valid
10	Instructions for the use of digital flipbook	5	5	5	Very valid
11	Characteristics of digital flipbook	5	5	5	Very valid
12	Content	5	5	5	Very valid
13	References	5	5	5	Very valid
14	Glossary	4	5	4.5	Very valid
15	Completeness of material	5	5	5	Very valid
16	Digital literacy aspect	5	4	4.5	Very valid
17	Supporting features of digital literacy	4	5	4.5	Very valid
<b>Language</b>					
18	Use of language		5	5	Very valid
19	Language structure		5	5	Very valid
20	Terms of use		4	4	Very valid
<b>Overall Interpretation</b>				4.75	Very valid

The expert validation confirmed that Digital flipbooks are highly effective and valid instructional tools with high scores in design, content, and language quality. The display, layout, and text quality were praised for their user-friendly and visually appealing design. The content aligned well with educational standards, providing comprehensive and structured material for pre-service English teachers (PSETs). Language use and structure were also deemed appropriate, ensuring clarity and professionalism.

Expert feedback was instrumental in improving the quality of the digital flipbook. Expert 1 suggested refinements in text organization, paragraph spacing, and subtitle color to enhance readability and contrast (Chavarría et al., 2021), leading to the implementation of a color-coding system: orange for subtitles, green for multimedia content, and bold orange for hyperlinks. A discovery learning approach was adopted to promote autonomous exploration of FLA principles by incorporating questions at the end of each section with concealed answers. Lin et al. (2021) emphasize that solving such questions encourages self-reflection, significantly enhancing deep learning.

In addition, Expert 2 recommended improving interactivity by including answer boxes within activities, enabling immediate feedback for student responses. Martin and Bolliger (2018) highlight that increased interactivity and a sense of community contribute to high-quality instruction and more effective learning outcomes. Furthermore, Expert 3 stressed the importance of adhering to foreign language writing conventions and improving punctuation accuracy, ensuring the material met professional standards. Greco (2023) underscores that maintaining linguistic accuracy and consistency fosters clarity and professionalism in educational resources. These revisions collectively enhanced the flipbook's usability, interactivity, and alignment with discovery-based learning principles,



transforming it into a robust resource for PSETs to master FLA concepts while fostering critical thinking and independent learning. The high validation score highlights its potential as an effective and valuable educational tool.

**Table 3.** Practicality Result

No.	Statement	Average	Category
<b>Learnability</b>			
1	The digital flipbook is easy to use.	4.80	Very good
2	Images in the digital flipbook are clear and easy to understand	4.73	Very good
3	Graphs in the digital flipbook are straightforward and easy to understand.	4.46	Very good
4	Videos in the digital flipbook are straightforward to understand.	4.60	Very good
5	Animations in the digital flipbook are straightforward to understand.	4.26	Very good
6	Language in the digital flipbook is clear and easy to understand.	4.90	Very good
7	I can understand the learning steps in a digital flipbook easily.	4.90	Very good
<b>Effectiveness</b>			
8	I can easily understand FLA material using the digital flipbook.	4.43	Very good
9	I can quickly understand the FLA material using the digital flipbook.	4.53	Very good
10	The digital flipbook makes me accustomed to solving problems.	4.63	Very good
11	Questions in the digital flipbook helped me understand the FLA material.	4.60	Very good
12	The user guide provided helped me operate a digital flipbook.	4.56	Very good
<b>Satisfaction</b>			
13	I am satisfied using the digital flipbook.	4.36	Very good
14	I feel interested in learning using a digital flipbook.	4.53	Very good
<b>Overall Interpretation</b>		<b>4.66</b>	<b>Very good</b>

The practicality testing with 30 students evaluated the digital flipbook's effectiveness as a learning tool for pre-service English teachers (PSETs) in facilitating Foreign Language Acquisition (FLA). The average score of 4.66 across three dimensions—learnability, effectiveness, and satisfaction—was categorized as "very good" (Table 3), reflecting a positive user experience. These results indicate that the digital flipbook effectively supports PSETs' learning process by providing ease of use, educational value, and engagement. The practicality testing also highlighted the flipbook's potential to enhance critical thinking skills. Improvements in critical thinking and comprehension of FLA concepts suggest that the flipbook provides meaningful learning opportunities by integrating exercises and scenarios that encourage real-world application.

**Table 4.** Students' test Achievement

Indicator	Pre-test	Post-test	N-gain	Category
Analysis	14,97	16.90	0.36	Medium
Evaluation	14,94	16.26	0.31	Medium
Inference	14,52	15.13	0.30	Medium
Deductive	13,94	15.81	0.31	Medium
Inductive	14,00	15.74	0.30	Medium
<b>Average</b>			<b>0.32</b>	<b>Medium</b>

Thirty third-year students from the English Department at Sultan Ageng Tirtayasa University participated in the practicality and effectiveness testing of the digital flipbook. The effectiveness testing was conducted alongside feasibility testing using the same materials from the FLA course. An essay test was administered after the students completed the digital flipbook course, and their responses were analyzed using a rubric designed to assess critical thinking skills. This assessment evaluated the students' proficiency in FLA alongside their critical thinking abilities based on learning objectives related to psycholinguistics. These objectives included analyzing the phases and processes of FLA, distinguishing between first and second language acquisition, and applying FLA concepts to improve English language teaching methods.

Table 4 highlights the students' test achievements, comparing their pre-test and post-test scores across five critical thinking indicators: analysis, evaluation, inference, deductive reasoning, and inductive reasoning. The N-gain scores, measuring performance improvement, fall within the "medium" category for all indicators, with an overall average N-gain of 0.32. Specifically, analysis scores increased from 14.97 to 16.90 (N-gain: 0.36), evaluation improved from 14.94 to 16.26 (N-gain: 0.31), inference rose from 14.52 to 15.13 (N-gain: 0.30), deductive reasoning increased from 13.94 to 15.81 (N-gain: 0.31), and inductive reasoning improved from 14.00 to 15.74 (N-gain: 0.30). These findings suggest moderate improvements in critical thinking skills and a positive impact of the digital flipbook on students' learning outcomes. While the results validate the flipbook's effectiveness, the medium range of improvement indicates potential areas for further refinement of the instructional design to achieve more significant learning gains.

Implementing an active learning methodology likely contributed to an improved understanding of FLA concepts compared to traditional, passive learning methods. The system's ease of use is significant as it helps PSETs develop essential digital literacy skills, enabling them to navigate technology-enhanced classrooms effectively (Sung et al., 2017). The findings highlight the value of employing active learning practices in teacher education. Additionally, feedback from PSETs with diverse learning preferences suggests that the digital flipbook aligns with learner-centered design principles. Modern educational methods emphasize the importance of materials accommodating various learning styles (Sung et al., 2017). The flipbook effectively addresses these varied needs through its interactive capabilities and multimedia elements. Customizing the flipbook to include tangible examples of FLA principles in practice could further enhance its applicability, allowing PSETs to observe how these concepts are implemented in real-world ELT contexts. While this feature is not fully realized, its inclusion would likely strengthen the resource's impact. These insights provide a foundation for educators to develop similar resources for pre-service teacher training programs.

The qualitative data also indicates that the digital flipbook enhances comprehension by visually representing complex FLA concepts. Visual elements, such as images, infographics, and videos, simplify abstract ideas and improve knowledge retention (Mayer, 2014). Furthermore, interactive features like quizzes, simulations, and polls encourage active engagement, helping learners transition from passive knowledge absorption to meaningful interaction with the content (Sailer, 2020). By incorporating real-life

applications of FLA principles, the flipbook offers opportunities for PSETs to connect theory with practice in ELT settings.

## CONCLUSION

This study explored the development and evaluation of a digital flipbook aimed at enhancing the understanding of Foreign Language Acquisition (FLA) among pre-service English teachers (PSETs). The findings suggest that the interactive and multimedia features of the flipbook supported PSETs in engaging with FLA concepts more effectively than traditional materials. Integrating learner-centered design principles and technology-enhanced learning tools contributed to improved comprehension and practical application of theoretical knowledge. The research highlights the potential of digital flipbooks as flexible resources for teacher education, offering interactive and engaging learning opportunities across various topics relevant to English Language Teaching (ELT) and other disciplines.

While the study provides valuable insights, it acknowledges certain limitations. The sample size was relatively small, and further research involving more considerable and diverse populations of PSETs is necessary to validate and expand upon these findings. Additionally, the long-term impact of the digital flipbook on PSETs' teaching methods once implemented in real classroom settings remains unexplored. Future studies could investigate how such tools influence instructional practices and assess their applicability in various educational contexts and academic disciplines. Finally, this research underscores the potential of digital flipbooks to enhance teacher education by integrating innovative, interactive, and technology-driven methodologies. Continued exploration of such tools will provide deeper insights into their effectiveness and broaden their application in preparing educators for the demands of modern teaching environments.

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